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FACULTY WORKING
PAPER NO. 1298

Towards a Typology of American Agriculture
in the Northern United States

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Towards a Typology of American Agriculture in the
Northern United States

Jeremy Atack, Professor
Department of Economics

"Towards a Typology of American Agriculture in the Northern United
States: Tenancy"

Abstract

Public land law during the nineteenth century progressively liberalized the terms under which land could be alienated, culminating in the Homesteading Act of 1862 that provided for free land subject to certain conditions. This paper examines the available quantitative evidence on tenancy rates in the northern half of the United States during this period and generates a comprehensive set of statistics on tenancy in 1860. These show that late nineteenth century trends were a continuation of earlier ones and the 1860 data are then employed in a logit model to investigate factors influencing tenancy at mid-century. The dominant factor proves to be wealth and there is evidence of a marked threshold effect.

Towards a Typology of American Agriculture in the Northern United States.

Part I.

Tenants and Yeomen in the Nineteenth Century: The Problem of Rising Tenancy*

Jeremy Atack
University of Illinois

1 September 1986

*This paper is intended as part of a larger study on the structure of American agriculture in the North during the nineteenth century. It focuses upon the much narrower issue of the extent of, and trends in, tenancy during the latter half of the century.

This paper benefited from the able research assistance of Dan Barbezat who helped program the Logit model in SAS.

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TOWARDS A TYPOLOGY OF AMERICAN AGRICULTURE IN THE NORTHERN UNITED STATES

PART I.

Tenants and Yeomen in the Nineteenth Century: The Problem of Rising Tenancy

Jeremy Atack
University of Illinois

INTRODUCTION

In the agriculturally-based economy of nineteenth century America, access to land was a critical determinant of economic and social progress for most of the population, particularly in the North where the farm family provided the bulk of the farm labor. This land could be obtained from one of two sources: private transfers of pre-owned, but not necessarily cultivated, land or the alienation of public land. Terms for the former were determined by the forces of supply and demand or by family lineage in the case of inheritance; the latter, by the terms of successive public land legislation beginning with the Land Ordinances of 1785. Since there was a large quantity of land in the public domain throughout most of the nineteenth century and the terms governing alienation were progressively liberalized, this resource imposed limits upon the private market.¹ As a result, the dominant view in American history has been that anyone who wanted land in the nineteenth century could have it.²

¹Figures in *Historical Statistics* estimate the public domain in 1850 at 1.2 billion acres. This compares with the less than 300 million acres of land then in farms. Of course, the two were not perfect substitutes for one another. The land already in farms had some unique locational advantages with respect to markets and climate and had embodied improvements. These made it more valuable than the unsettled lands in the West that constituted the bulk of the public domain. See US Department of Commerce, *Historical Statistics of the United States from Colonial Times to 1970*, Washington DC: GPO, (1975), Series J-3.

²See, for example, the extensive literature on the "Safety Valve," especially Frederick Jackson Turner, *The Frontier in American History*, New York: Henry Holt & Co. (1920) and Ray H. Billington, *Westward Expansion: A History of the American Frontier*, New York: Macmillan & Co. (1967);

Nevertheless, when the first statistics on tenancy were collected in 1880 they showed that nationwide a quarter of all farmers did not own their own land and this proportion increased steadily over time.³ Given that there were substantial advantages to landownership, it is unlikely that many tenants voluntarily chose that position. Faced by this evidence on substantial and rising tenancy, apologists sought solace in the assumption that tenancy must have been lower--indeed, many argued, non-existent--at some earlier time when land was relatively more abundant and there existed unsettled land on the frontier. Only one voice, that of Paul W. Gates, was raised in disagreement. He argued that the very institutions that were supposed to promote owner-occupancy through the progressive liberalization of terms in fact promoted land speculation, monopolization, and tenancy.

This paper reviews the debate over rising tenancy and presents the available quantitative and qualitative evidence on the trends in the northern half of the United States during the nineteenth century. I then develop estimates of tenancy rates for the northern half of the United States in 1860--a time when there was unsettled land on the frontier in Kansas and Minnesota and public policy was ostensibly directed towards promoting smallholdings. These show levels of tenancy that are generally consistent with those in 1880 and the trend thereafter. The data are then used to examine the distinguishing features of tenant farmers in 1860 and these are compared with those of tenants later in the century. Lastly, I use the personal, familial, and farm characteristics of individual tenants and yeomen in 1860 to determine the probability that a person with particular characteristics would be a tenant or owner-occupier.

TENANCY POST-1880

The Superintendent of the 1880 Census, Charles W. Seaton, described the data on tenancy as of the "highest economical and sociological importance," and drew attention to the sharp regional differences in tenancy rates.⁴ The

³US Department of the Interior. Census Office, *Report upon the Statistics of Agriculture*, Washington DC: GPO, 1883, (Volume 3 of the Tenth Census), pp. xiii-xiv.

⁴*Ibid.* Seaton assumed the post of Superintendent of the Census in 1881 following the resignation of Francis A. Walker. He held the post until it was abolished in 1885.

tenancy rate was lowest in the Northeast, 16 percent, and highest in the South where it exceeded one-third (Table 1).⁵ The tenancy rate in the Midwest lay between these two extremes at just over twenty percent. The high incidence of Southern tenancy might be excused as an aberration induced by emancipation and the failure to provide the freeman with 40-acres and a mule. However, it is harder to rationalize the higher rate of tenancy in the Midwest than the Northeast. For example, the Northeast had been settled earlier and hence those forces promoting economic concentration such as luck, superior ability, and inheritance had had longer to operate. Moreover, settlement, particularly in the Middle Atlantic states, had often taken place under adverse tenure conditions.⁶ In contrast, settlement in the Midwest was much more recent and land alienation had taken place under the increasingly liberal provisions of successor land legislation to the 1785 Ordinances. Furthermore, by the time the 1880 Census was taken, western parts of the Midwest had experienced eighteen years of homesteading where 160 acres was free to those who cultivated it for five years.

The Census did not, however, pursue the paradox of tenancy under the land settlement conditions in the Midwest and virtually no analysis of the data was conducted. Instead, the Census reprinted an optimistic, comparative article by Francis A. Walker, the former Superintendent of the Census, on American agriculture. In his view, the data showed that land tenure system in the United States was "highly popular." He attributed this in part, "to the existence of vast tracts of unoccupied lands 'at the West' whatever that phrase may at the time have meant . . . [and also to] the liberal policy of the government relative to the public domain; partly to excellent laws for the registration of titles and the transfer of real property . . . ; and partly to the genius of our people, their readiness to buy or sell, to go east or to go west, as a profit may appear."⁷

⁵Excluding the eight Mountain states where there were only about 25,000 farms.

⁶For example, the Hudson Valley was originally settled under a manorial system reminiscent of feudal Europe and Pennsylvania through the Crown grants to William Penn.

⁷Francis A. Walker, "American Agriculture" as reprinted from the *Princeton Gazette* with addition from the *Agricultural Review* by the Tenth Census. See US Department of the Interior. Census Office, *Statistics of Agriculture, op. cit.*, p. xxviii.

TABLE 1

Percentage of All Farms Operated by Tenants, by Geographic Region, 1880-1900

Region	1880	1890	1900
New England	8.5	9.3	9.4
Middle Atlantic	19.2	22.1	25.3
East North Central	20.5	22.8	26.3
West North Central	20.5	24.0	29.6
South Atlantic	36.1	38.5	44.2
East South Central	36.8	38.3	48.1
West South Central	35.2	38.6	49.1
Mountain	7.4	7.1	12.2
Pacific	16.8	14.7	19.7

Regions are as follows:

New England: CT, ME, MA, NH, RI, VT.

Middle Atlantic: NJ, NY, PA.

East North Central: IL, IN, MI, OH, WI.

West North Central: IA, KS, MN, MO, NB, ND, SD.

South Atlantic: DE, DC, FL, GA, MD, NC, SC, VA, WV.

East South Central: AL, KY, MS, TN.

West South Central: AR, LA, OK, TX.

Mountain: AZ, CO, ID, MT, NM, NV, UT, WY.

Pacific: CA, OR, WA.

Source: E. A. Goldenweisser and Leon E. Truesdell, Farm Tenancy in the United States, Washington DC: GPO, (1924), p. 23. (US Department of Commerce. Bureau of the Census, Census Monograph IV).

When the inquiry was repeated at the Eleventh Census in 1890, it was found that tenancy had risen in every region except the West, but again the data were viewed with little concern and no extensive analysis was performed. Indeed, the Census officials seem to have drawn a inference from the data. Between 1880 and 1890, the total number of farms increased by 555,734 and there were 285,422 more owner-occupied farms than in 1880. These figures were interpreted by the Census Office as showing that the 270,312 additional tenant farms were from the population of new farms established during the decade rather than by the decline of existing yeomen into tenancy.⁸

Tenancy rates rose sharply in most areas between 1890 and 1900 (see Table 1) and the data began to attract more official attention. The analysis of the data by the Superintendent of the Twelfth Census in 1900 was more sophisticated and extensive than in the past. Nevertheless the official view remained that the rising level of tenancy was no cause for concern:

It was taken for granted almost universally that the number of tenants was increasing at the expense of the the number of owners and that the movement expressed by the increase of tenancy was an ill omen for the republic . . . [but] the popular conclusion overlooks some very important social facts . . . that the farms operated by owners have increased faster since 1850 than the agricultural population. Such an increase can only be possible providing the increase in the number of tenants has been by the elevation of former wage employees to the position of farm tenants. Such an increase in the number of tenants has been by recruits from the ranks of wage employees and not from farm owners or their children.⁹

Not until the publication of the results of the Fourteenth Census for 1920 were the data on tenancy examined seriously. Tenancy was then the

⁸US Department of the Interior. Census Office, *Report of the Statistics of Agriculture*, Washington DC: GPO, 1895 (volume 5 of the Eleventh Census), pp. 3-6, especially p. 5.

⁹US Census Office. Twelfth Census, *Agriculture, Part I*, p. lxxvii. The view of tenancy as a way-station on the climb up an agricultural ladder is a common one in the literature and one to which I return below.

subject of a separate monographic study.¹⁰ The authors, Goldenweisser and Truesdell, described farm tenure was a two-fold problem, on the one hand dealing with the relationship between the cultivator and the land and on the other with the distribution of wealth between those who furnish land, those who furnish capital, and those who provided the labor for farming. They argued that the economic advantage of one status versus the other could be determined by comparing the annual cost of land possession under the two forms of tenure but concluded that "it is accepted as a foregone conclusion that ownership is preferable . . . based in part upon conditions purely accidental and having little connection either with the net income of individual farmers or with the productivity of agriculture in general."¹¹ Among the forces which they identified as generating owner-occupancy were the federal land policy of putting land directly into the hands of those who would cultivate it, rising land values and the importance of these to farm profitability, and the lack of an efficient system of leases.¹² Like earlier observers of tenancy, Goldenweisser and Truesdell thought that "when a given area was newly settled, especially so long as free land was to be had, there was little tenancy."¹³

Rising tenancy was attributed to "the fact that free land was practically exhausted by 1900, and . . . to the hard times that prevailed in the nineties and caused a large number of mortgages to be foreclosed, making it necessary for many farm operators to rent farms in order to continue farming."¹⁴ The closing of the frontier and economic adversity were also cited as causes of rising tenancy in the 1923 *USDA Yearbook*. There, however, the authors (Louis C. Gray among them) went one step further and attributed long-term tenancy to the below average capabilities of the tenant farmer.¹⁵

¹⁰E. A. Goldenweisser and Leon E. Truesdell, *Farm Tenancy in the United States*, Washington, DC: GPO, 1924 (US Department of Commerce. Census Bureau. *Census Monograph IV*)

¹¹*Ibid.*, p. 12.

¹²*Ibid.*, p. 13.

¹³*Ibid.*, p. 13 and p. 19

¹⁴*Ibid.*, p. 21.

¹⁵L. C. Gray et al. *Farm Ownership and Tenancy, USDA Yearbook of the Department of Agriculture 1923*, pp. 507-600.

Not until the *Report of the President's Committee on Farm Tenancy* in 1937 were these views seriously challenged by a more sympathetic portrait of the tenant farmer and concern with the rising tenancy rates.¹⁶ In their analysis, tenant farmers were trapped by the system in an economically and socially undesirable situation and had little chance of escape to the freedom of independent owner-occupancy. In part, the Committee blamed current economic conditions but they also thought that "policies for disposing of the public domain have permitted acquisition of large areas, mostly for speculative purposes, by those who have no intention of farming them."¹⁷ As a result the Committee recommend, among other things, a remedial policy of government land purchase for subsidized resale to tenants and improvements in credit.¹⁸

HISTORIANS ON TENANCY IN THE NINETEENTH CENTURY

In the classic study of northern agriculture, Bidwell and Falconer make virtually no mention of tenancy.¹⁹ For them, it simply was not an issue in American agriculture before the Civil War. Where tenancy was mentioned, the traditional view was that cheap or free land promoted owner-occupancy. This is exemplified by Percy Bidwell's dismissal of tenancy in his essay on the rural New England economy at the start of the nineteenth century with the simple statement that "it is well known that almost every farmer owned his own land." Similar statements were made later for lands lying further west. Wrote one scholar of Illinois in the 1850s, "with so much land yet unoccupied, the cultivated portions could command but little rent and tenancy

¹⁶National Resources Committee, *Farm Tenancy: Report of the President's Committee*, Washington DC: GPO, February 1937.

¹⁷*Ibid.*, p. 6.

¹⁸*Ibid.*, pp. 11-20.

¹⁹Percy W. Bidwell, "Rural Economy in New England at the Beginning of the Nineteenth Century," *Transactions of the Connecticut Academy of Arts and Sciences*, 20, (April 1916), pp. 241-399. The quote is from p. 371. Percy W. Bidwell and John I. Falconer, *History of Agriculture in the Northern United States, 1620-1860*, Washington DC: Carnegie Institution, 1925, p. 242.

was not common."²⁰ Statistically unseen and--by argument--logically impossible, tenancy could not have existed.

This interpretation did not, however, go unchallenged. The less optimistic view of the benevolence of Federal land policy found in the *Report of the President's Committee* reflected that then appearing in the academic literature from Paul W. Gates.²¹ Reversing the logic of the traditional argument that free or cheap land promoted ownership, Gates claimed that the system promoted the growth of tenancy:

The Land Ordinance of 1785 and subsequent laws had placed no restrictions upon the amount of public land that individuals or groups could acquire . . . The policy of unlimited sales and unrestricted transfer of titles made possible land monopolization by speculators, who acquired most of the choice lands in certain areas . . . This resulted in the early disappearance of cheap or free land and the emergence of tenancy.²²

The result was, he argued, an incongruous land system that fostered tenancy at the expense of ownership. Cheap land was a double-edged sword. Not only was it more affordable for the person with limited means, but in the absence of restrictions on the size of holdings the wealthy could buy huge tracts at minimal cost. Passage of the Homestead Act in 1862 did little to relieve this because of the ability of speculators to find dummy entrymen and take advantage of the commutation privilege. As a result, large tracts of land were acquired by speculators, land companies, and the wealthy.

²⁰Russell H. Anderson, "Agriculture in Illinois During the Civil War Period, 1850-1870," unpublished Ph.D thesis, University of Illinois, 1929, p. 63.

²¹See Paul W. Gates, "The Homestead Law in an Incongruous Land System," *American Historical Review*, 41 (1936), pp. 652-681. Also "The Role of the Speculator in Western Development," *Pennsylvania Magazine of History and Biography* 66 (July 1942), pp. 314-333; "Land Policy and Tenancy in the Prairie States," *Journal of Economic History* 1 (May 1941), pp. 60-82; "Land Policy and Tenancy in the Prairie Counties of Indiana," *Indiana Magazine of History* 35 (March 1939), pp. 1-26; "Frontier Landlords and Pioneer Tenants," *Journal of the Illinois State Historical Society* 38 (June 1945), pp. 142-206.

²²Gates, "Land Policy and Tenancy in the Prairie Counties of Indiana," *op. cit.* p. 3.

Moreover, the railroads were given vast acreages through federal land grants.²³

In Gates' view, speculative landholdings and railroad land grants reduced the market supply of land and bid up the price. Since demand was inelastic, would-be farmers were therefore compelled to spend more of their income on land than would otherwise have been the case. Those who could not afford to pay the higher prices or borrow were faced with a choice of farming a smaller area or becoming tenants and some may have been excluded from the market altogether.

Gates made a persuasive case, supporting his argument with extended discussions of the operations of land speculators such as Samuel Allerton, Michael Sullivant, and William Scully, institutional landholders such as the Illinois Central Railroad, and the actions of promoters of tenancy such as Henry L. Ellsworth.²⁴ However, the debate could not be closed because the statistical evidence to substantiate the case for early tenancy was lacking. Moreover, Gates' economic argument is incomplete. In particular, it ignores the effect of competition between landlords for tenants which should have driven down rents thus making tenancy relatively more desirable.

DID FEDERAL LAND POLICY INTEND TO PROMOTE OWNER-OCCUPANCY?

Few observers of the American scene have been more insightful than Alexis de Tocqueville who opened *Democracy in America* with the statement "nothing struck me more forcibly than the general equality of condition among the people."²⁵ The foundations for this condition, he argued, were the legal institutions governing land ownership and inheritance and the

²³Federal railroad land grants between 1850 and 1870 totaled 131 million acres and Texas granted an additional 27 million acres.

²⁴See, especially, Paul W. Gates, "Land Policy and Tenancy in the Prairie Counties of Indiana," *op. cit.* and "Frontier Landlords and Pioneer Tenants," *op. cit.*

²⁵Alexis de Tocqueville, *Democracy in America*, (first published, Paris, 1835). Quotes and references are to the Henry Reeve text as revised by Francis Bowen with corrections by Phillips Bradley: New York, Alfred Knopf (1946), v. 1, p. 3.

abundance of the fundamental resource in which the "lands of the New World belong to the first occupant; they are the natural reward of the swiftest pioneer."²⁶

There is an enduring and continuing debate over the extent of Thomas Jefferson's contribution to the Land Ordinance of 1785 and the Northwest Ordinances of 1787. However, there seems little doubt that his views exercised an important influence on the character of the legislative debate and its outcome. Those views are perhaps best reflected in a letter that he wrote to the Reverend James Madison from Fontainebleau, France in 1785 wherein he recounted a conversation with a poor woman whom he met along the road:

This little attendrissement with the solitude of my walk, led me to a train of reflections on that unequal division of property which occasions the numberless instances of wretchedness which I have observed in this country and is to be observed all over Europe.

The property of this country is absolutely concentrated in a very few hands. . . . I asked myself what could be the reason so many should be permitted to beg who are willing to work, in a country where there is a very considerable proportion of uncultivated land. . . . It should seem then that it must be because of the enormous wealth of the proprietors which places them above attention to the increase of their revenues by permitting these lands to be labored. . . . Whenever there are in any country uncultivated lands and unemployed poor, it is clear that the laws of property have been so far extended as to violate natural right. The earth is given as a common stock for man to labor and live on. If for the encouragement of industry we allow it to be appropriated, we must take care that other employment be provided to those excluded from the appropriation. If we do not, the fundamental right to labor the earth returns to the unemployed. It is too soon yet in our country to say that every man who cannot find employment, but who can find uncultivated land, shall be at liberty to cultivate it, paying a moderate rent. But it is not too soon to provide by every possible means that as few as possible shall be without a little portion of land. The small landholders are the most precious part of a state.²⁷

²⁶*Ibid.*, p. 431.

²⁷Thomas Jefferson to the Reverend James Madison, October 28, 1785.

In keeping with this philosophy, Jefferson favored giving the land to settlers, "for by selling land to them [poor settlers], you will disgust them, and cause an avulsion to them from the common union. They will settle the lands in spite of everybody," but on this point he lost.²⁸ The immediate revenue needs of the federal government required that the land be sold and in the short-run the terms for alienation became more restrictive as land prices rose in real terms, credit terms were abolished, and payment in specie demanded. However, in the long-run, the trend was towards relaxation. Minimum acreages were reduced and the preemption rights of squatters were recognized. Furthermore, there was continual pressure from both within and without the government to abolish sales in favor of donation. Thomas Hart Benton, for example, frequently made impassioned speeches on the floor of the Senate on this point, arguing that:

Tenantry is unfavorable to freedom. It lays the foundation for separate orders of society, annihilates the love of country, and weakens the spirit of independence. The farming tenant has, in fact, no country, no hearth, no domestic altar, no household god. The freeholder, on the contrary, is the natural supporter of free government; and it should be the policy of republics to multiply their freeholders . . . pass the public lands cheaply and easily into the hands of the people; sell, for a reasonable price, to those who are able to pay; and give, without price, to those who are not able to pay.
²⁹

This dream was eventually realized in the Homestead Act of 1862, but the evidence from the 1880 Census suggests that tenantry was eliminated. Whether or not it was successful in reducing the levels of tenancy, however, remains to be shown in this paper.

If federal land policy was to prove unsuccessful in preventing tenancy in the long-run, there is some evidence of earlier success. According to de Tocqueville, "the English laws concerning the transmission of property were abolished in almost all states at the time of the Revolution. The law of entail was so modified as not materially to interrupt the free circulation of

²⁸Thomas Jefferson to Edmund Pendleton (?), August 13, 1776.

²⁹See Thomas Hart Benton, *Thirty Years' View*, New York: D. Appleton & Co., (1854), 2 vols. Volume 1, pp. 103-4.

property" with the result that, as of 1830 at least, "the families of the great landed proprietors are almost all comingled with the general mass."³⁰

QUANTITATIVE EVIDENCE ON TENANCY PRIOR TO 1880

In recent years, a number of quantitative estimates of tenancy pre-dating 1880 have appeared. These rely upon scattered, direct and indirect, evidence. On the eve of the Revolution, for example, it is estimated that there were 6-7,000 tenant farmers in New York.³¹ Further south, in the "best poor man's county"--Chester and Lancaster counties, Pennsylvania--James Lemon estimated that perhaps 30 percent of the married taxpayers were landless in the late colonial period.³² Such rates imply that tenancy was as high (and maybe even higher) at the time of the Revolution as it was a century later. One rationalization of these statistics is that they represent outcomes under old land tenure systems that were based on large individual grants--systems that the Land Ordinances replaced as the basis for settlement in the West. Nothing definite though was known about conditions in the Midwest beyond the speculation by traditionalists that tenancy was unlikely under the circumstances and the denial of this by Gates and his supporters.

However, as a the result of the pioneering efforts of Allan C. Bogue and thanks to the diligence of a census enumerator in exceeding the scope of his instructions, we came to have some inferential statistics on tenancy at mid-century for the Midwest. Bogue discovered that in Jones County, Iowa for 1860 the Assistant Marshal had noted the tenure status of a large number of respondents who did not own real estate in that county. Based upon this, Bogue has argued that those persons named in the agricultural sched-

³⁰de Tocqueville, *op. cit.*, pp. 50-1.

³¹John Watt, *Pennsylvania Ledger: or the Weekly Advertiser*, Oct. 29, 1777 quoted by Sung Bok Kim, *Landlord and Tenant in Colonial New York Manorial Society, 1664-1775*, UNC Press 1978, p. vii. Unfortunately, the lack of data on the number of farms precludes expressing this as a tenancy rate. Based on the enumeration at the first census in 1790, however, it seems unlikely that there would have been more than about 80,000 families in New York at the time of the Revolution and that more than 70,000 could have been engaged in farming. On this basis, no more than 10 percent of farmers were tenants.

³²James T. Lemon, *The Best Poor Man's County*, Johns Hopkins University Press, 1972, p. 94.

ules as operating a farm and who listed their occupation as farmer but reported no real estate value on the population schedules were tenants.³³ Using this technique, he estimated the 1860 tenancy rates in three Iowa townships as ranging from 6.6 to 11.2 percent.³⁴ Such tenancy rates are lower than those for colonial Pennsylvania and probably about the same order of magnitude as those in Revolutionary New York state.

Tenancy in Iowa has also been the focus of two other studies by students of Bogue. Using the same methodology as Bogue, Seddie Cogswell studied the relationship between tenancy, age, and nativity in a six county area of eastern Iowa.³⁵ In that area, tenancy rates increased irregularly from 17.6 percent in 1850 to 27.3 percent in 1880, though the rate fell between 1850 and 1860 to 15.1 percent, declining in all but two of his sample counties.³⁶ Cogswell argues that the increasing tenancy did not reflect the emergence of a class of economically distressed farmers in eastern Iowa but rather a changing age structure of the farm population.³⁷ Indeed, among the 126 farmers whom he can trace between 1860 and 1870, only 2 became farmers whereas the overall tenancy rate during the same period increased by four percentage points.³⁸ Based upon his analysis of statewide-trends in tenancy in Iowa from 1850, Donald Winters concluded that the changes were

³³Bogue also identifies a separate class of "farmers without farms" who gave occupations as farmer on the population schedules and reported a zero real estate value but for whom no farm was located in the agricultural schedules. He argues that these comprised optimistic farm laborers and recent settlers in the process of looking for a suitable farm. See Allan G. Bogue, *From Prairie to Corn Belt: Farming on the Illinois and Iowa Prairies in the Nineteenth Century*, Chicago: University of Chicago Press, 1963, pp. 56-66, especially pp. 63-5.

³⁴These are the recalculated tenancy rates from Bogue, *From Prairie to Corn Belt*, Table 9, p. 65, if "farmers without farms" are excluded from both the denominator and numerator.

³⁵Seddie Cogswell, Jr., *Tenure, Activity and Age as Factors in Iowa Agriculture, 1850-1880*, Ames, IA: Iowa State University Press, 1975.

³⁶*Ibid.*, Table 3.1, p. 23.

³⁷*Ibid.*, pp. 152-3. I discuss the relationship between tenancy rates and age as part of the agricultural ladder below.

³⁸*Ibid.*, p. 153 and Table 3.1, p. 23.

"an integral part of an evolving, maturing agricultural system," placing more emphasis upon cash grain farming.³⁹

TENANCY IN THE NORTHERN UNITED STATES IN 1860

All of the published quantitative studies of tenancy pre-1880 to date focus on narrow geographic areas--two counties in the case of work by Bogue and Lemon to as large an area as an entire state.⁴⁰ The new evidence on early tenancy developed in this study, on the other hand, covers the entire North. It is derived from the large-scale, matched sample of agricultural and demographic data collected by Fred Bateman and James D. Foust. This sample was selected from a population of twenty states from Maryland north and from the East Coast westward to the frontier of settlement. It was stratified to be representative of both the Northeast and Midwest. The data were actually drawn from 102 randomly selected rural townships from the pool of all non-urban counties and townships and sixteen northern states are represented.⁴¹ Statistical tests indicate that the sample is not only a reasonable approximation of the entire North and the two sub-regions, the Northeast and Midwest, but also that the township data for particular states cor-

³⁹Donald L. Winters, "Tenancy as an Economic Institution: The Growth and Distribution of Agricultural Tenancy in Iowa, 1850-1900," *Journal of Economic History*, 37, 2(June 1977): pp. 382-408. Quote is from p. 406.

⁴⁰The statement is qualified because since starting work on the project I have become aware of a chapter in Donghyu Yang's doctoral dissertation from the Harvard University that uses the same data set in a manner similar to that employed here. See Donghyu Yang, "Aspects of United States Agriculture, Circa 1860," unpublished doctoral dissertation, Harvard University, 1985, especially Chapter 3, "Farm Tenancy in the Northern United States, 1860." Yang touches upon some of the issues such as the differences in the demographic and socio-economic characteristics of tenants and yeomen discussed here, in addition, he develops a economic model of the rental market and investigates the productivity differential between tenant farmers and owner-occupiers. The data that we ultimately use for our analysis also differs because of variations in our selection criteria and my inclusion of Maryland and Missouri.

⁴¹Fred Bateman and James D. Foust, "A Sample of Rural Households Selected from the 1860 Manuscript Censuses," *Agricultural History*, 48, 1(1974): pp. 75-93.

respond closely to that for the state as a whole.⁴² Generalizations at the state level, however, may be somewhat suspect, especially with respect to a single statistic such as tenancy.

There are 11,943 farms in the sample, 10,288 of which met my criteria for inclusion in this study. To be included, acreage, crops, and farm, implements, and livestock values had to be recorded for each farm. It also had to be matched with a household in which at least one member reported an occupation of farmer, tenant, agriculturalist, or part-time farmer. These criteria are somewhat more stringent than those used by Atack and Bateman and led to the exclusion of a somewhat higher percentage of potential tenant farmers than yeomanry.⁴³ As a result the tenancy rates reported here are generally fractionally lower.

Like Bogue, I classify as tenants all those farmers who reported owning no real estate. The lack of written rules for enumerators concerning the treatment of tenant farmers prior to 1880, however, seems to have led to a variety of other coding patterns for tenants elsewhere. In the South, Frederick Bode and Donald Ginter similarly found that enumerators deliberately listed persons who called themselves farmers but who were really tenants as having no real estate, but the convention among southern enumerators was also to list no farm value or acreage on the agricultural schedules. Production data would, however, be recorded. Sometimes there were other variations on this theme such as recording acreage and farm value in whole or in part.⁴⁴ Such practices were clearly contrary to the enumerator's instructions and do not seem to have been widespread otherwise tenancy rates were ex-

⁴²Jeremy Atack and Fred Bateman, *To Their Own Soil*, Ames IA: Iowa State University Press (forthcoming), Chapter 7 and unpublished work.

⁴³See Atack and Bateman, *To Their Own Soil*, *op. cit.*, Chapter 7. The tenancy rates reported in *To Their Own Soil* are based only upon those farms that had a farmer. For inclusion here, however, no missing values were tolerated. For example, the tenancy rate reported in Table 7-1 of *To Their Own Soil* for Indiana is 210 per thousand compared with 190 per thousand reported in Table 3 below. Most were closer. The effect of these more stringent criteria, however, was dramatic for the estimate of the tenancy rate in Missouri, reducing it from 205 to 120 per thousand.

⁴⁴Frederick A. Bode and Donald E. Ginter, "A Critique of Landholding Variables in the 1860 Census and the Parker-Gallman Sample," *Journal of Interdisciplinary History*, 15, 2(1984), pp. 277-95, especially pp. 278-80.

tremely low.⁴⁵ The partial recording of data in particular would confound analysis. To the extent that tenants were poorer than owner-occupiers, we would expect that, other things equal, they would have smaller farms with fewer improvements. It would therefore be difficult if not impossible to distinguish this relative poverty hypothesis from the measurement error implied by Bode and Ginter's alternative hypothesis of the partial recording of relevant values.

There is no evidence of deliberate partial recording of information in the North and there is broad agreement among researchers that farmers without real estate were tenants. Contrary to the practice of others, however, I do not accept the simple dichotomy of farmers into tenants and yeomen. There was, I will argue, a third group, namely those who listed their occupation as farmer or agriculturalist or who claimed to follow two or more occupations one of which was that of farmer and for whom a farm was located in the agricultural schedules but who probably owned only a fraction of the land that they farmed. They are identified by a value of real estate on the population schedules greater than zero but less than the value of the farm which they operated. I shall refer to this group as "part-owners."⁴⁶ Such farmers are common today and they also proved numerous in the nineteenth century. They constituted about a third of all tenants and have been ignored by other researchers during the nineteenth century.⁴⁷

Using this classification scheme, the tenancy rates from the Bateman-Foust sample by state, for the sub-regions, and the region as a whole are

⁴⁵See U.S. Census Office. Eighth Census. *Instructions to U.S. Marshals. Instructions to Assistants*. Washington DC: G. W. Bowman, 1860.

⁴⁶This represents a change in terminology (though not group) from that used in *To Their Own Soil* where they are referred to as "tenants in part." This name change reflects the results in Table 3 below and is consistent with the terminology of Gray et al. *Farm Ownership, op. cit.* and Goldenweisser and Truesdell, *Farm Tenancy, op. cit.*

⁴⁷The instructions to census enumerators for 1910 and 1920 were unambiguous that farmers renting only a part of their land were to be classified as owners. However, the instructions for earlier censuses did not state how such cases were to be treated by enumerators.

shown in Table 2.⁴⁸ Rates for part-owners and tenants are reported separately so that the data can be compared directly with the estimates by Bogue, Winters, and others. For example, my estimate of 130 tenants per thousand farmers in Iowa is somewhat lower than that reported by Cogswell for eastern Iowa as a whole and for most of his individual sample counties, but is in the upper half of the county estimates given by Winters.⁴⁹ Although the part-owner rate is quite strongly positively correlated with the rate for pure tenants, in a number of states more than half of our overall tenancy rate is accounted for by this group whom others would exclude.⁵⁰ Indeed, in Michigan, New Hampshire, and Ohio more than 70 percent of the tenants owned some real estate. Rates for part-owners range from 30 to 100 per thousand farms across the sample and averaged 60 per thousand in the sub-regions and for the entire North. Rates for those farm operators owning no real estate whatsoever were much more diverse, ranging from as few as 20 per thousand in Michigan to as many as 450 per thousand in Maryland. Notwithstanding these two extremes, however, the rates were generally higher in the Midwest than the Northeast.

Counting part-owners as tenants, less than half of the farms in Maryland were operated by yeomen who could have owned their farms outright. At the other extreme, only about 7 percent of Michigan farmers and 8 percent of farmers in Connecticut and New York were tenants.⁵¹ The finding that, in general, tenancy was more prevalent in the newer regions of settlement lends superficial support to Paul Gates' assertions about the failure public land law to promote smallholders as Jefferson desired. In particular, tenancy was especially high on the Kansas and Minnesota frontiers, where the rate exceeded one-third, despite the abundance of cheap land in the

⁴⁸To avoid the appearance of unwarranted precision in the estimates, they are reported as rates per thousand farms rounded to the nearest ten.

⁴⁹See Cogswell, *Tenure*, *op. cit.*, Table 2-1, p. 23 and Winters, "Tenancy," *op. cit.*, p. 384.

⁵⁰Unless noted otherwise, the tenancy rates for 1860 reported throughout this paper are those including part-owners as tenants.

⁵¹The overall figure for New York compares favorably with that by Kim for the Revolutionary period. If part-owners are excluded then the rate is much lower. See Kim, *Landlord and Tenant*, *op. cit.*

TABLE 2
Estimated Tenancy Rates per Thousand Farms from the Bateman-Foust
Sample for 1859-60, by State

State/Region	Overall Tenancy Rate ^a	Tenancy Rate ^b	Part- Ownership Rate ^c
Illinois	170	130	40
Indiana	190	130	60
Iowa	190	130	60
Kansas	330	220	110
Michigan	70	20	50
Minnesota	360	310	50
Missouri	120	60	60
Ohio	130	40	90
Wisconsin	110	50	70
Midwest	170	110	60
Connecticut	80	50	30
Maryland	550	450	100
New Hampshire	100	30	70
New Jersey	150	70	80
New York	80	40	40
Pennsylvania	190	130	60
Vermont	160	50	100
Northeast	150	90	60
THE NORTH	160	100	60

NOTES:

^aOverall Tenancy rate =Tenancy Rate + Part-Owners Rate

^bPart-owners owned real estate valued at less than the value of the farm that they operated.

^cThose farm operators reporting no real estate value.

Totals may not sum across the rows because of rounding.

immediate vicinity.⁵² This directly contradicts those in the 1920s who argued that tenancy could not have existed under such circumstances of land availability.⁵³ Nevertheless, the relationship seems to have been spurious. Using the Atack and Bateman estimates of land availability for the 102 sample townships and correlating these with the tenancy rate show little correlation between them.⁵⁴

TRENDS IN TENANCY FROM 1860

Despite the caveat regarding the use of the Bateman-Foust data at the state level, my estimates of tenancy rates appear consistent with the levels at the Tenth Census in 1880 and with their trend from 1880 to 1900. These data are graphed in Figure 1. The estimates for 1860 are consistent with those for later years. Surveying the available statistics on tenancy in 1937, the *Presidential Committee* remarked that "for the past 55 years, the entire period for which we have statistics on land tenure, there has been a continuous and marked decrease in the proportion of operating owners and an accompanying increase in the proportion of tenants."⁵⁵ Based upon the data for 1860 this trend seems to have established much earlier. Rising tenancy in the northern half of the United States thus appears part of a long-term evolutionary process rather than the result of any revolutionary change or sudden crisis. Only the rates for Kansas, Maryland, and Minnesota appear far out of line with what one might have expected based on the post-1880

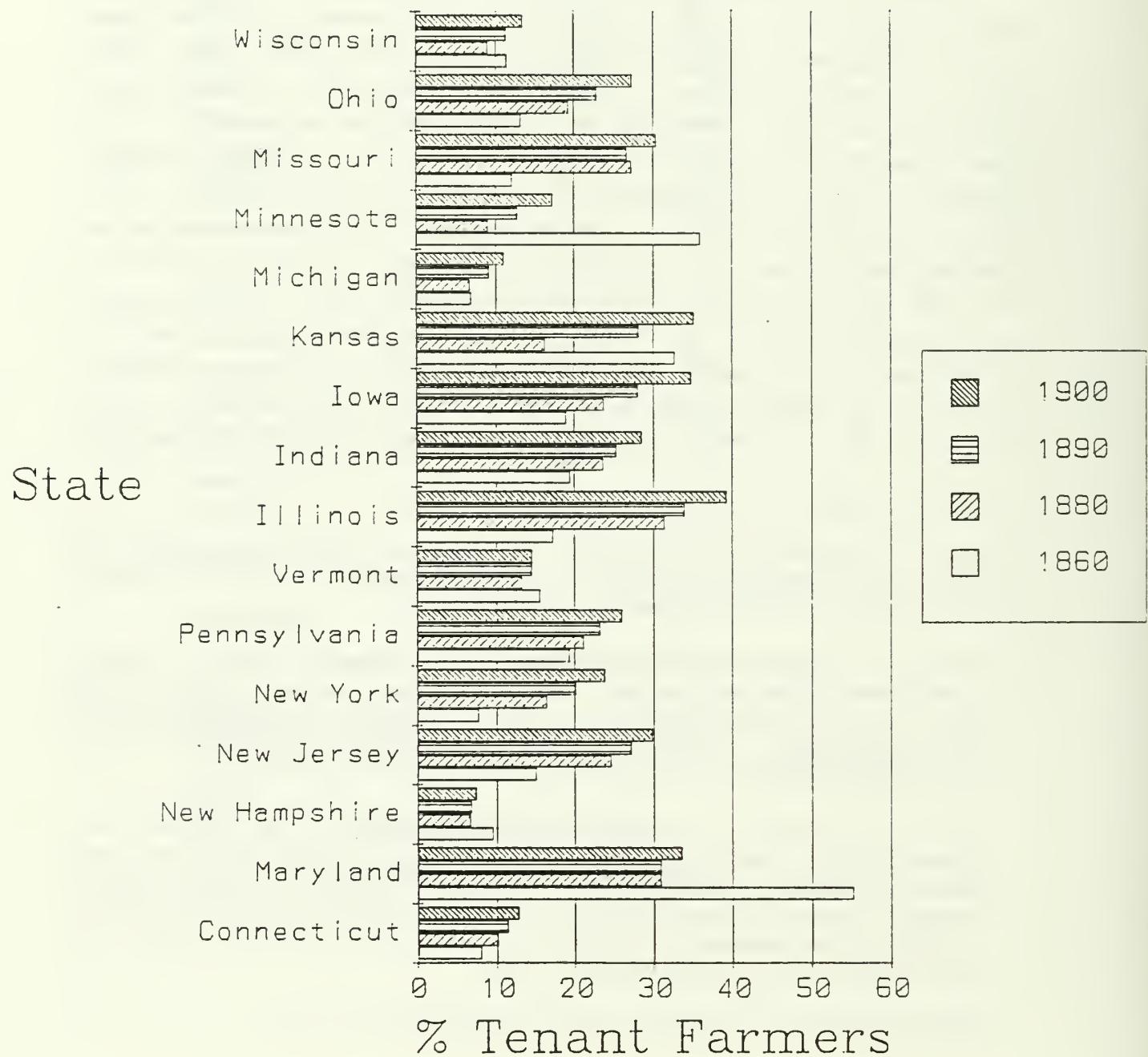
⁵²Even if part-owners are excluded, the tenancy rates in Minnesota and Kansas remain among the highest rate for the sample states. See also Atack and Bateman, *To Their Own Soil*, *op. cit.*, Chapter 4.

⁵³It has been suggested that a high percentage of frontier farmers reported no real estate value because they did not yet have property rights in the land that they farmed since they were illegal squatters in the process of securing preemption. We cannot confirm or refute this hypothesis with the data at our disposal.

⁵⁴For the methodology for estimating land availability, see Donald Leet, "Human Fertility and Agricultural Opportunities in Ohio Counties: From Frontier to Maturity, 1810-60," in D. Klingaman and R. Vedder, *Essays in Nineteenth Century Economic History*, Athens: Ohio University Press, (1975), pp. 138-58. The measure is an index of excess demand for land. The correlation coefficient was estimated at -0.071.

⁵⁵National Resources Committee, *Farm Tenancy*, *op. cit.*, p. 3.

FIGURE 1
 Changing Rates of
 Tenancy by State, 1860-
 1900.



data and these can be explained. The recording of squatters as tenants on the frontier may account for the high tenancy rates in Kansas and Minnesota. Maryland is even more easily explained by the peculiar and atypical nature of the sample observation of Costin District in Worcester County. If the post-1880 data for Maryland are also restricted to this same county, the tenancy rate for 1860 no longer appears that unusual.⁵⁶

The estimates of the tenancy rates in 1860 also show substantial intra-state variation among the sample townships. Work by Cogswell and Winters also leads to the same conclusion.⁵⁷ Rates, by broad range, for the individual townships in the Bateman-Foust sample are shown in Figure 2. In Illinois, for example, rates varied from as low as 43 per thousand in Bureau and Whiteside counties to 406 per thousand in Knox county. Although at the township level the number of tenant farmers tended to be small, the data exhibit spatial regularity in that tenancy rates in adjacent townships were generally more similar than those in townships that were more widely removed. Tenancy was generally very low (under 100 per thousand) on the northern margins of the United States and even within states there seems to have been some tendency for tenancy rates to fall from south to north. In both Kansas and Minnesota the tenancy rate at the frontier of settlement was either very high--in three townships exceeding 50 percent--or very low, lending some support to the "squatter hypothesis" to explain frontier tenancy.⁵⁸ My estimate of the tenancy rate for the sample township in Tipper-canoe county, Indiana, a county closely associated with the tenancy promotion schemes of Henry Ellsworth, 42 percent, was among the highest in our sample townships.⁵⁹

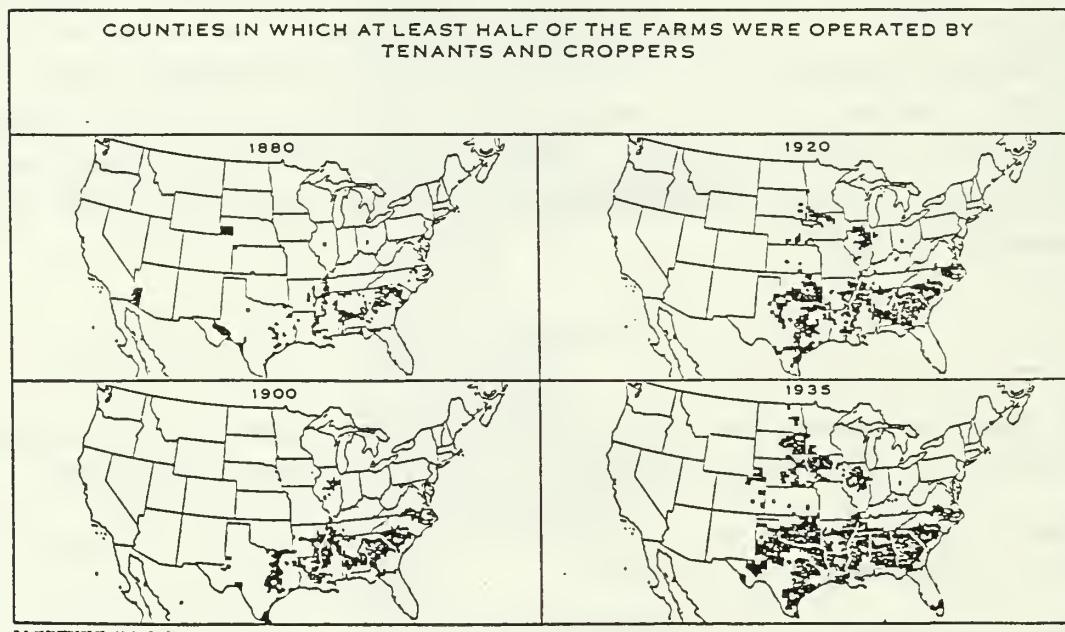
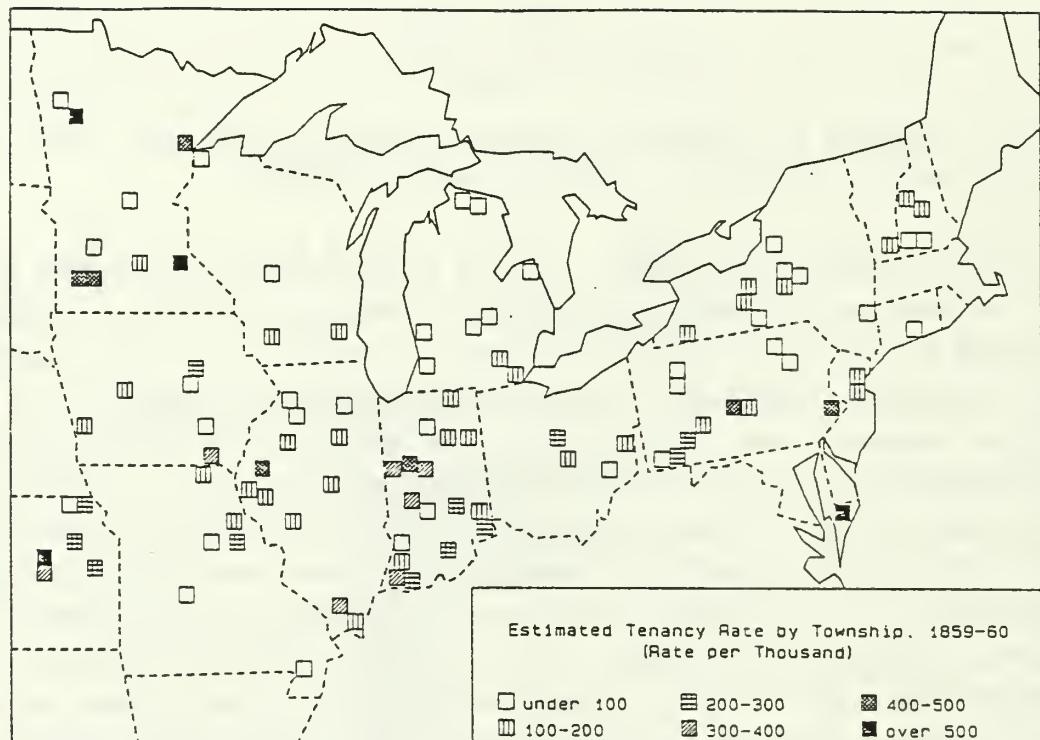
⁵⁶In 1880 the tenancy rate in Worcester County was 48%; by 1890, 49%; and in 1900, 52%. In Costin District, the rates may have been even higher.

⁵⁷See Cogswell, *Tenure*, *op. cit.*, Table 2-1, p. 23 and Winters, "Tenancy," *op. cit.*, p. 384 and Maps 1-3, pp. 401-3.

⁵⁸The townships where tenancy rates exceeded 500/1000 were Council Grove, Morris County, Kansas; Vasa township, Goodhue County, Minnesota and Mahnomen County also in Minnesota. In addition, tenancy exceeded 500/1000 in Costin District, Worcester County, Maryland.

⁵⁹See Gates, "Land Policy and Tenancy in ... Indiana," *op. cit.* Tenancy was also particularly high in one Illinois county, Knox. This is not one of those mentioned by Gates where the largest and most famous speculators made investments but a county history lists two early residents of the sample town-

FIGURE 2



ship, George Stevens and John Wyman, who owned hundreds of acres that they leased. These two men could have accounted for between a third to a half of the tenants in 1860. See Newton Bateman (ed.), *Historical Encyclopedia of Illinois and Knox County*, Chicago: Munsell Publishing Company, 1899, pp. 881-2.

Also shown in Figure 2 are maps shading those counties from 1880 onward where tenancy exceeded 50 percent.⁶⁰ The most notable feature, of course, is the heavy concentration of counties with high tenancy rates in the South. But even as early as 1880 there were some entire counties in the North where more than half the farmers were tenants. Furthermore, the general pattern of the spread of high-tenancy counties post-1880 is consistent with the pattern of levels in 1860. Areas in which tenancy tended to be high in 1860 were those where tenancy was to exceed fifty percent within the next seventy-five years.

THE SIZE DISTRIBUTION OF TENANT AND YEOMAN FARMS

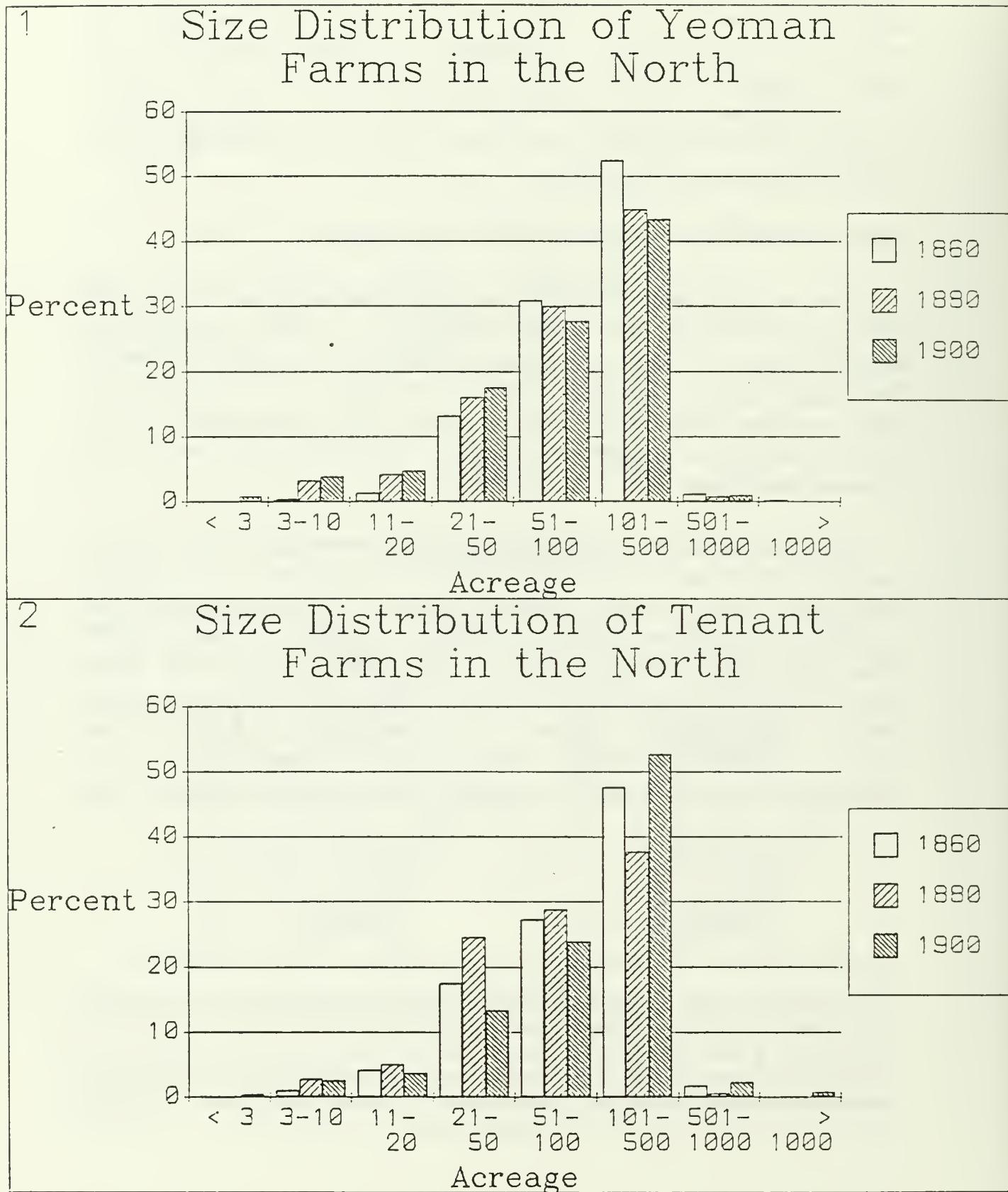
The size distribution for tenant and yeoman farms in the North in 1860 shows a tendency for those of owner-occupiers to be larger than those of tenants (Figure 3). There were proportionately more yeoman than tenant farms over 50 acres, while the relative frequency of tenant farms under 20 acres was three times that of owner-occupiers. This is consistent with the notion of tenancy as "entry-level" farming, a theme discussed in more detail in the section below.

The distribution of farms by size for 1860 does not quite mirror that of the population of all northern farms because of the deliberate rural bias of the sample, nevertheless, the distributions by size and tenure generally appear consistent with the proportions of farms of different sizes in 1880.⁶¹ These show quite different trends in the distributions between tenure classes over time. Between 1860 and 1900, owner-occupied farms tended to shrink in size, while both large and small tenant farms gained ground at the expense of medium-sized units. The marked and persistent decline of yeoman farms with over 50 acres is consistent with the subdivision of the fam-

⁶⁰The maps for 1880 onward are taken from National Resources Committee, *Farm Tenancy*, *op. cit.*, Figure 2, p. 40.

⁶¹See Bateman and Foust, "A Sample of Rural Households," *op. cit.* The major defect relative to the size distribution of all northern farms is too few small farms. These tended to be located closer to urban areas.

FIGURE 3



ily farm upon death or the sale of portions of the farm to satisfy the claims of those heirs not receiving real estate (Panel 1 of Figure 3). The pattern is less clear-cut for tenants but overall both very small (under 11 acres) and larger (over 100 acres) farms were growing in relative numbers (Panel 2 of Figure 3). The increasing importance of very small tenant farms may reflect the development of profitable smallholdings producing vegetables for sale in urban markets; the growth of the large may reflect economies of scale and the incentive for the tenant to farm extensively.⁶²

WAS THERE AN AGRICULTURAL LADDER?

Much of the debate on tenancy has centered upon the issue of whether tenants were upwardly mobile farm wage laborers climbing the agricultural ladder or yeomen on their way down as debt and cash flow problems "tended to depress many farm owners into the tenant class?"⁶³

Gates and his supporters thought the latter. Lawanda Cox, for example, in her study of tenancy and the agricultural ladder claimed that "historical studies of the economic conditions of the western farmer suggests that back-sliding may have been a major factor in many localities."⁶⁴ Pessimism also permeated the 1937 report of the *Presidential Committee on Farm Tenancy*. They concluded that "movement from rung to rung [of the agricultural ladder] has been predominantly in the direction of descent rather than ascent" and that there was "an increasing tendency for the rungs of the ladder to become bars--forcing imprisonment in a fixed social status from which it is increasingly difficult to escape."⁶⁵ Even Bogue, an ardent supporter of the interpretation of tenancy as a stage experienced by the upwardly mobile,

⁶²See, for example, Goldenweisser and Truesdell, *Farm Tenancy*, *op. cit.*, p. 40-4 and Gray, *Farm Ownership*, *op. cit.*, pp. 569-73 for a discussion of the same phenomenon in the twentieth century.

⁶³Gates, "Frontier Landlords and Pioneer Tenants," *op. cit.*, p. 63

⁶⁴Lawanda Cox, "Tenancy in the United States; 1865-1900: A Consideration of the Validity of the Agricultural Ladder Hypothesis," *Agricultural History* 18 (1944), pp. 97-105

⁶⁵National Resources Committee, *Report of the President's Committee on Farm Tenancy*, Washington DC: GPO February 1937, p. 5.

cites evidence of downward mobility derived from biographies in county histories.⁶⁶

Fundamentally, however, Bogue thought tenancy a "step up the tenure ladder, which carried them from their original status as hired men to positions where they not only owned their farm homes but often rental property as well."⁶⁷ This view is also shared by Danhof who describes renting a farm as "an important step toward ownership throughout this period" and it typifies the views of most contemporary observers in the late nineteenth and early twentieth centuries.⁶⁸ Carroll Doten, for example, in his Forward to the 1920 Census monograph on tenancy, wrote "the evidence seems to prove conclusively that tenancy is generally a convenient way of approach to full ownership. It is, in fact, a part of the agricultural ladder."⁶⁹ The authors of that report, Goldenweisser and Truesdell, also wrote of farm tenancy as "one step in the process whereby a man starting in life with a limited capital, or with nothing but his own energy and enterprise, may after a time acquire the ownership of a farm."⁷⁰

The agricultural ladder hypothesis depends upon two critical assumptions. The first is that tenancy offered an alternate entry level to farming for those lacking sufficient capital to become owners; the second is that people moved from one rung to another whether up or down. According to Clarence Danhof, farm-making on the frontier required about \$1,000 for a 40-acre farm.⁷¹ This figure is corroborated by census data on the value of farms, implements, and livestock for 40-80 acre farms in the Midwest in

⁶⁶Bogue, *From Prairie to Cornbelt*, p. 57.

⁶⁷*Ibid.*, p. 56.

⁶⁸See Clarence Danhof, *Change in Agriculture*, Cambridge: Harvard University Press, 1969, pp. 87-94. The quote is from p. 88.

⁶⁹Goldenweisser and Truesdell, *Farm Tenancy*, *op. cit.*, p. 10.

⁷⁰Goldenweisser and Truesdell, *op. cit.*, p. 83-104. See also Gray, *op. cit.*, pp. 547-63 and US Census Office. Twelfth Census, *Agriculture, Part I*, p. lxxvii, quoted above (footnote 9).

⁷¹Clarence C. Danhof, "Farm Making Costs and the Safety Valve," *Journal of Political Economy*, 49, (1941), pp. 317-59.

1860.⁷² Such wealth requirements would have put farm ownership beyond the means of at least half of the population, but the lower capital expenses of tenancy put it within the reach of perhaps 80 percent of the populace.⁷³ Therefore, if the desire to farm were universal, typically no more than about half of the populace could afford independent status as owner-occupiers and 20-30 percent more could afford to rent. The rest of the population would have to either work as farm laborers or seek alternate employment.

Mobility, whether up or down, is harder to trace. Most of the evidence is indirect. Perhaps the best historical evidence is that presented by Gray in the 1923 *USDA Yearbook* based on data collected by the 1920 Census. This shows that in the Middle Atlantic and midwestern states at least 30 percent of persons who became yeoman farmers between 1915 and 1920 had, at one time, been tenants. In Iowa, the figure was more than 70 percent. In New England, the proportion was much lower, lying between 10 and 30 percent.⁷⁴

A more indirect method of distinguishing between the upward versus downward mobility explanations for tenancy is by identifying the characteristics of tenant farmers and comparing them with those for other groups. In each sample state, for example, tenants were, on average, younger than owner-occupiers. This difference was also statistically significant. In the Midwest, tenants were, on average, 36.9 years old whereas the average age for owner-occupiers was 42.8 (see Table 3 below). A t-test of the difference between these means predicts that a difference of this magnitude would arise by chance in fewer than 1 in 10,000 samples if both sets of data were drawn from the same population. Those who reported occupations as farm

⁷²Jeremy Attack, "Farm and Farm-Making Costs Revisited," *Agricultural History*, 56, (October 1982), pp. 663-676

⁷³Jeremy Attack and Fred Bateman, "The 'Egalitarian Ideal' and the Distribution of Wealth in the Northern Agricultural Community: A Backward Look," *The Review of Economics and Statistics*, 63, (February 1981), pp. 124-129; "Egalitarianism, Inequality, and Age: The Rural North in 1860," *Journal of Economic History*, 41, (March 1981), pp. 85-93; *To Their Own Soil*, Chapter 6.

⁷⁴Gray et al. *Farm Ownership*, *op. cit.*, pp. 553-61, especially Figure 52, p. 556. See also Goldenweisser and Truesdell, *Farm Tenancy*, *op. cit.*, pp. 102-14.

TABLE 3

Average Sample Characteristics of Tenants, Part-Tenants, and Yeomen in the Midwest and Northeast,
1859-60

Characteristic	MIDWEST			NORTHEAST		
	Tenant	Part- Owner	Yeoman	Tenant	Part- Owner	Yeoman
<u>PERSONAL CHARACTERISTICS</u>						
Age	36.9	40.2	42.8	38.2	44.6	47.1
Percent Literate	86.5	90.7	91.8	88.0	97.1	97.4
Percent Migrants	66.1	63.2	63.6	5.8	7.7	14.8
Proportion of whom born in:						
New England	4.9	10.8	7.9	31.0	74.0	75.7
Mid-Atlantic	18.0	29.0	28.8	31.0	13.0	20.9
Midwest	29.2	22.2	17.6	0.0	0	0.7
South	48.0	38.1	45.8	39.7	13.0	2.7
Percent Immigrant	15.6	15.5	21.0	5.8	4.3	5.5
Proportion of whom born in:						
England	14.7	14.8	19.5	10.3	23.3	29.1
Ireland	14.7	32.3	20.0	44.8	32.6	23.6
Germany	30.8	29.0	33.3	20.7	32.6	25.5
Years of Residency	14.4	18.0	18.9	35.5	41.2	41.8
Household Size	5.4	5.6	6.1	5.7	5.4	5.5
Number of Children	2.9	2.6	3.0	2.3	2.1	2.0
Real Estate Value	0	1751.8	2838.4	0	2409.0	4006.8
Personal Estate	351.9	750.4	865.4	623.3	1083.1	1280.3

(Table 3 is continued on the next page)

TABLE 3 (continued)

Characteristic	MIDWEST			NORTHEAST		
	Tenant	Part- Owner	Yeoman	Tenant	Part- Owner	Yeoman
<u>FARM CHARACTERISTICS</u>						
Improved Acreage	48.9	75.2	67.6	73.6	90.0	83.3
Unimproved Acreage	59.0	81.1	73.7	54.4	50.9	36.3
Value of Farm	1536.5	3186.2	2465.5	3258.4	4587.2	3636.2
Value of Implements	62.6	95.3	96.3	98.7	130.3	132.6
Value of Livestock	284.1	457.1	454.9	401.5	530.2	533.6
Value of Home Manufactures	6.7	8.9	9.8	3.7	1.9	3.8
Gross Revenue	483.9	693.8	884.2	716.6	907.2	1126.4
Of which:						
% from Wheat	11.5	12.1	10.5	5.1	4.5	3.4
% from Corn	30.3	25.2	19.2	22.0	13.7	7.9
% from Hay	9.1	10.7	8.3	10.3	16.1	18.5
% from Dairy	9.2	10.2	8.5	14.4	16.8	17.4
Sample Size	732	399	5361	342	209	3245

laborer were much younger still and, by the same token, those whom I have identified as part-owners were older than tenants but younger than yeomen. This pattern is consistent with upward mobility over the life cycle as suggested by the agricultural ladder where owner-occupiers began as farm laborers, progressing to tenant to part-owner before achieving full ownership.

However, not only were tenant farmers typically younger than yeomen but the proportion of farmers who were tenants (in either whole or part) progressively declines as age increases (Figure 4). Overall, about 30 percent of farmers under the age of 25 were tenants, compared with about 16 percent for those in their late 30s and early 40s and only 9 percent for farmers aged 55 and older. This pattern was repeated in each sub-region and is even apparent at the state level, though with some deviations (Figure 5). These data are further evidence of a life cycle pattern of occupational mobility on the agricultural ladder. Consider, for example, the case of Indiana farmers. The tenancy rate among farmers under 25 years of age was 35 percent; for those 25-34, it was 29 percent, falling to 17 percent for farmers aged 35-44, 15 percent for those 45-54, and 11 percent for farmers 55 and older.

The distribution of tenancy rates by age for 1860 when compared with that for later years becomes part of a consistent long term trend (Figure 6). Among the young tenancy rates rose over time, more than doubling between 1860 and 1920. These data are consistent with the notion that rising capital costs posed an increasing barrier to entry to the ranks of the yeomanry for the young. The most remarkable feature of these data, however, is the relative constancy of tenancy rates among those aged 45 or older through time. Tenancy rates among the elderly in 1920 were little different from what they had been sixty years earlier. This suggests that wealth accumulation over the life cycle compensated for the rising entry costs.

There is some question whether that data for different age cohorts at a single point in time describes the life cycle pattern within a changing environment that a particular cohort would experience through time. Data for the post-1890 period indicate generally increasing proportions of tenant farmers in each age class from decade to decade.⁷⁵ Thus, for example in 1890, 56 percent of farmers under 25 were tenants while in 1900, 72 percent

⁷⁵Goldenweisser and Truesdell, p 88. Data broken down by age were not separately reported in 1880.

FIGURE 4
Farm Tenancy Rates by
Age of Farmer and
Region, 1859-60.

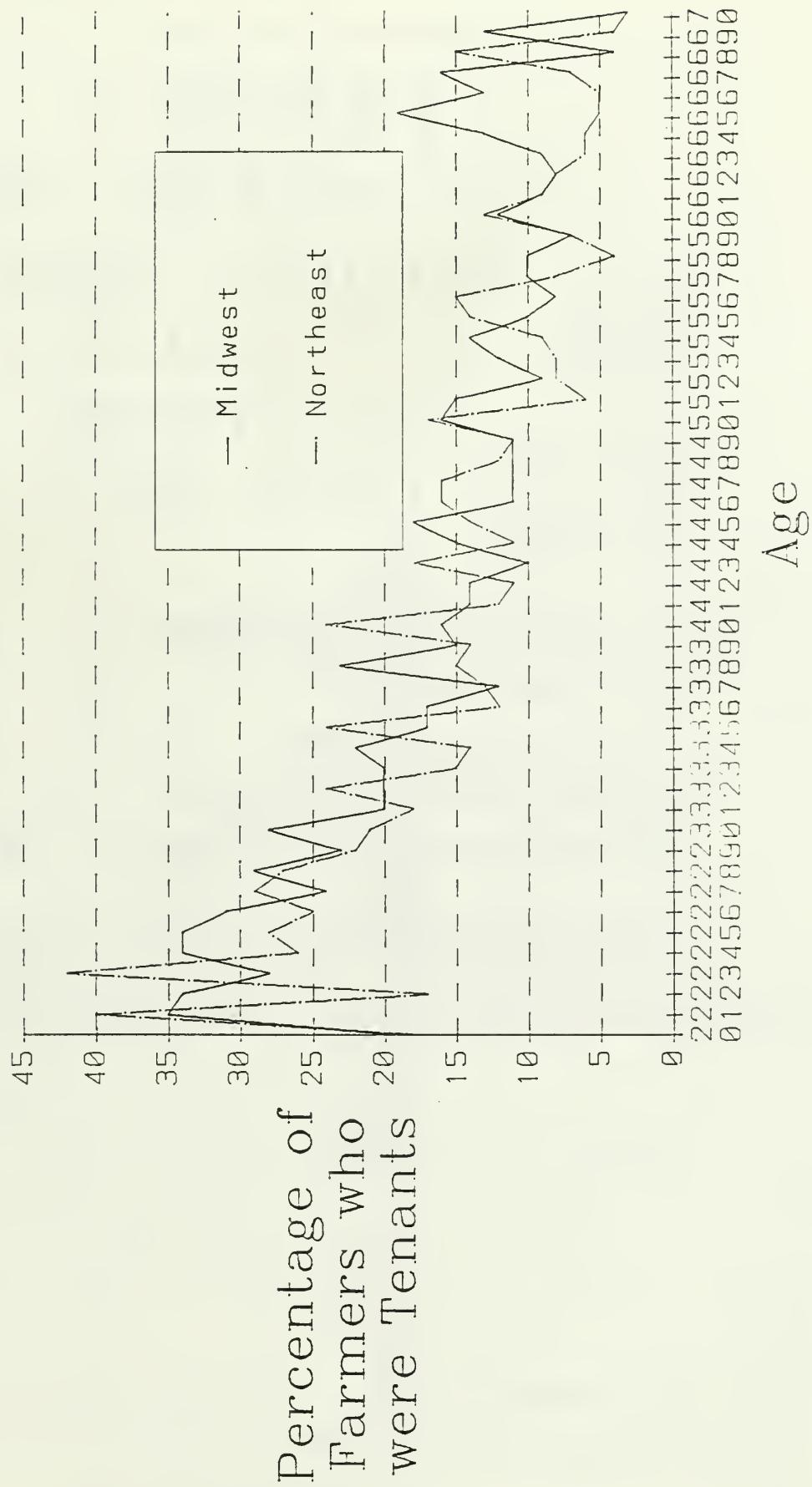


FIGURE 5
 Percentage of
 Farmers who
 were Tenants by
 Age Group,
 1859-60.

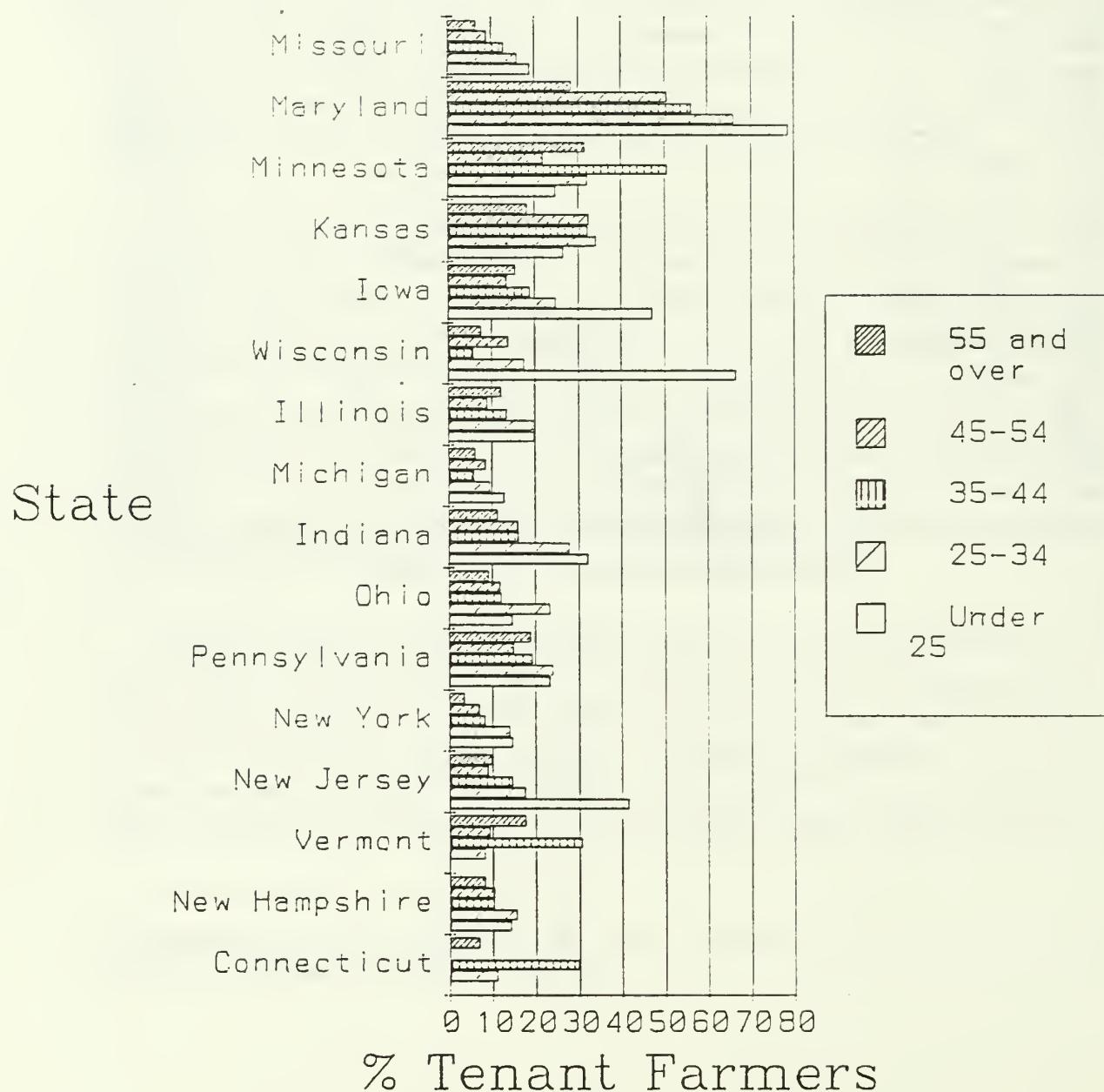
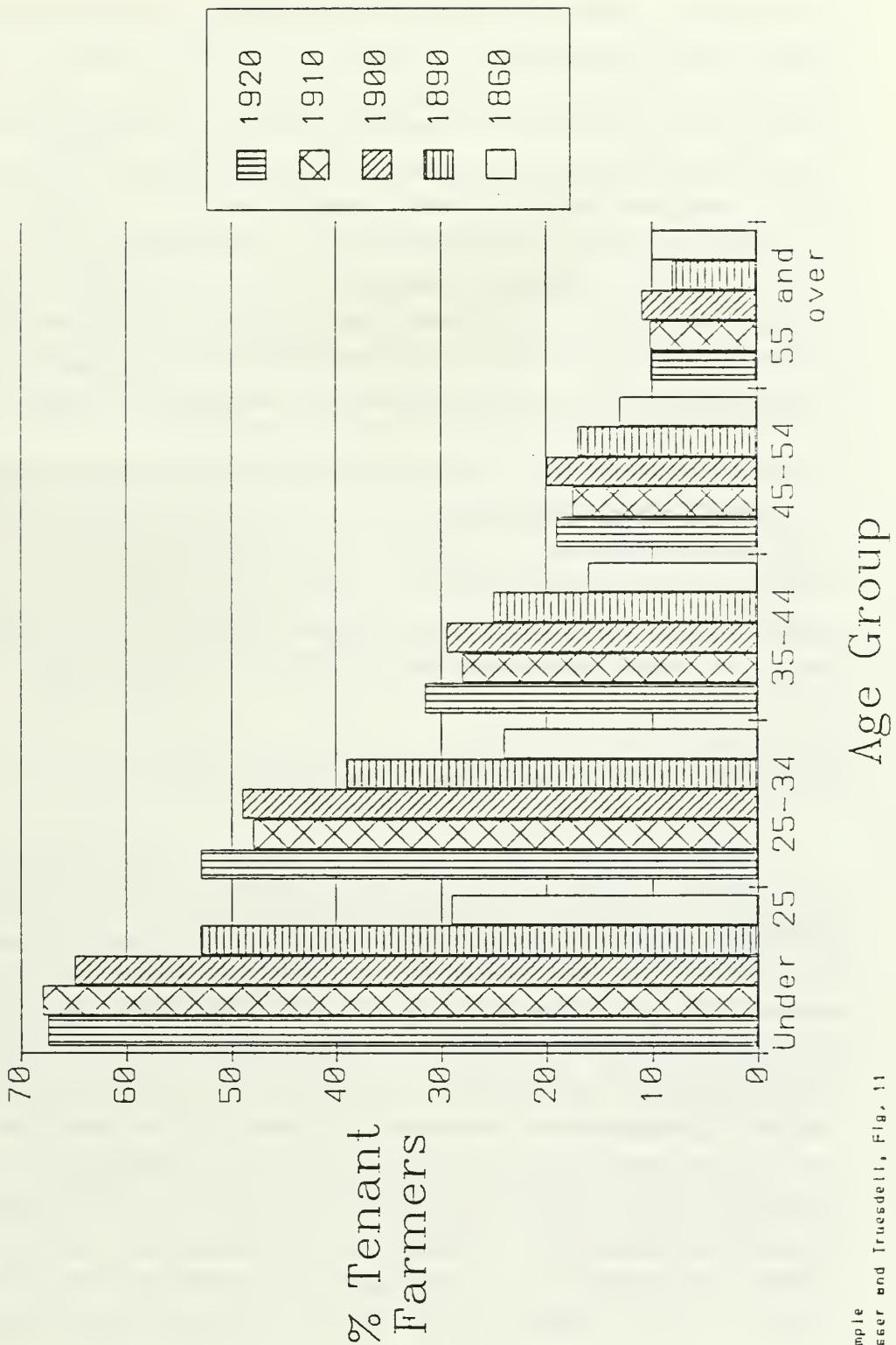


FIGURE 6

Percentage of Farmers
Who were Tenants, by
Age, 1860-1920



1860: Beleman-Faust sample
Other years: Goldsmith and Irvin's data, Fig. 11

Age Group

were tenants. Similarly, in the 1890 42 percent of farmers aged 25-34 were tenants and a decade later the proportion was 54 percent. However, the data are still consistent with upward mobility despite the growing tenancy rate. Each age cohort at successive censuses is composed mainly of survivors from the younger cohort at the preceding census. Thus if there were no movement out of the ranks of tenant farmers, we would have expected 56 percent farmers aged 25-34 to have still been tenants in 1900 compared with the actual 54 percent. Indeed, if history were one of continual back-sliding into tenancy and increasing difficulty in upward mobility to owner-occupancy, the percentage in any age cohort at one census should have exceeded that in the younger age cohort at the preceding census.

The same argument can be made though less convincingly because of the large amount of immigration for the period between 1860 and 1890. The data for 1890 show a smaller percentage of tenant farmers among this cohort in the North (19 percent) than in the under 25 age cohort thirty years earlier. Similarly, the percentage of farmers 55 and older in 1890 (8 percent) is much lower than the percentage of farmers aged 25-34 (23 percent) in 1860.

WERE TENANTS DIFFERENT FROM YEOMEN?

Tenants differed from yeomen in virtually every characteristic that I can identify or compute from the manuscript data (Table 3). No such generalization, however, is possible for part-owners who sometimes were more like yeomen than than tenants; sometimes vice versa; and sometimes like neither. The age characteristics of the three groups are consistent with the agricultural ladder hypothesis: Tenants were significantly younger than part-owners and part-owners, in turn, were significantly younger than yeomen. Literacy rates increased significantly from tenants to part-owners and yeomen and, although part-owners were somewhat less literate as a group than the yeomanry, the difference between them was marginal. The data on migration show marked regional differences as well as variations between the groups.⁷⁶ In the Midwest, two-thirds of the tenant farmers were native-born migrants and about one-seventh were immigrants, while

⁷⁶The relatively high percentage of southern migrants (especially in the Northeast) reflects the sample weights of Missouri and Maryland in the Bateman-Foust sample.

the proportion of migrants among the yeomanry fell and the proportion of immigrants rose. In the Northeast, on the other hand, migrants were more likely to be members of the yeomanry than the tenantry, but there was little difference between the groups with respect to the proportion of immigrants. Immigrants may have preferred owner-occupancy to tenancy both because of the advantages of ownership (see below) and because of past experiences with tenancy in their homelands. These seem the most likely explanations. On the other hand, immigrants may have been the victims of discrimination by landlords who preferred to rent to natives. Unfortunately, the data do not allow us to test the direction of causality and resolve this issue. In both the Midwest and the Northeast, tenants were more likely to have been shorter-term residents of the state than part-owners or yeomen.⁷⁷ This suggests that those who moved in search of superior opportunities may have been penalized and the longer one stayed in a place, the more likely one was to move up the ladder from tenant to yeomen.⁷⁸ In the Midwest, household and family size increased from tenant to yeoman, a result consistent with the labor demands for farm-making on yeoman farms. In the Northeast, household and family size tended to fall somewhat.

Tenant farmers, by definition, had no real estate. Part-owners had about 60 percent of the accumulated real estate value of the yeomen and

⁷⁷This variable is measured very imperfectly and the estimates may be substantially in error. Years of residency was computed from the manuscript census data using information on place of birth and age. For farmers born in-state, years of residency was their age. For those born out-of-state, it was zero if they had no children born in-state. The age of the oldest child born in-state establishes a lower-bound for the most recent date at which the farmer might have migrated to the state, the age of the youngest child born out-of-state establishes an upper-bound. In this case, we took the mid-point as our estimate. Where no child was born out-of-state, the upper-bound was set as the age of the farmer and the mid-point again computed. See Richard A. Easterlin, et. al., "Farm and Farm Families in Old and New Areas: The Northern States in 1860," in Tamara Hareven and Maris Vinovskis (eds.), *Family and Population in Nineteenth Century America*, Princeton: Princeton University Press, (1978), pp. 22-84. Also Atack and Bateman, *To Their Own Soil*, *op. cit.*, Chapter 2, and Yang, "Aspects of United States Agriculture," *op. cit.*, Chapter 3.

⁷⁸For estimates on the costs of migration and a measure of these penalties, see Donald Schaefer, "A Model of Migration and Wealth Accumulation: Farmers at the Antebellum Southern Frontier," *Explorations in Economic History*, (forthcoming).

somewhat less as a fraction of the value of the farm which they operated. Yeomen, on the other hand, reported about \$500 more real estate value each than the value of their farm. Each group had some personal estate. For the tenants, it was often little more than the value of implements and livestock that were recorded on the agricultural schedules. Part-owners, and especially the yeomen, were better off.

The farm data in Table 3 also reveal some interesting differences between the groups. In both regions, the farms of part-owners were more valuable than those of either the tenant or the yeomen. This suggests that part-owners may have rented land in order to farm on a more extensive scale than reliance upon their resources would have permitted. Tenants had fewer livestock and less valuable implements than the others, but yeomen and part-owners were virtually indistinguishable from one another with respect to these. Farm size varied between the groups in each region. In the Midwest, tenants were more likely to have smaller farms than the other groups, whereas in the Northeast tenant farms were a little larger than those of the yeomanry (although with fewer improvements) but smaller than those operated by part-owners. In the Midwest, too, there was a substantial difference between the groups in terms of involvement in home manufactures. The yeomanry produced far more home manufactures, indicative of a higher level of self-sufficiency, than tenants.⁷⁹

I have also included in the table the percentages of estimated gross farm revenues accounted for by four crops: two cash grains, wheat and corn, that could be sold to distant markets, and hay and dairy products that were usually consumed locally.⁸⁰ The data clearly show the greater degree of specialization of tenant farms compared with those of yeomen. In the Midwest, tenant farmers derived 60 percent of their gross revenues from these four products compared with only 47 percent for the yeomen. In the Northeast, yeomen specialized to about the same degree as in the Midwest, though in the opposite product mix, while tenants were less specialized than in the Midwest but somewhat more specialized than yeomen. In both regions, tenant farmers concentrated more on cash grains than other crops.

⁷⁹These differences are the same as those noted sixty years later. See Gray et al. *Farm Ownership*, *op. cit.*, p. 573.

⁸⁰Crops were valued at farm gate prices. See Atack and Bateman, *To Their Own Soil*, *op. cit.*, Chapter 13, especially Table 13-1.

This is consistent with their greater need for cash to meet their periodic obligations.

WHY WERE PEOPLE TENANTS?

Notwithstanding the secular growth of tenant farming, it seems unlikely that tenancy was the unconstrained first choice of the farmer. It was certainly less economically desirable than owner-occupancy. Deprived of capital gains on land, tenants did not share in one of the major sources of farm profit during this time.⁸¹ Furthermore, to the extent that the rental market functioned well, landlords were able to capture much of the surplus over and above labor returns that were generated by the tenant.⁸² As a result, tenants probably did little better than farm laborers and may even have been worse off to the extent that they bore increased income risk without commensurate compensation because of their choice of crop mix.⁸³

Why then did people become tenants instead of yeomen? It is clear from the data in Table 3 that tenants were not the same as yeomen. In part, they were at different stages in their life cycle, but there were also other immutable differences between them. It is also clear that the groups were different between the Northeast and the Midwest. This raises the question of whether these differences can in any sense "explain" why one farmer became a tenant, another a yeoman? What evidence can be gleaned from the data for 1860?

The simple model used here expresses the choice of tenant or yeoman as a function of personal, household, and farm characteristics.⁸⁴ However, the issue is somewhat confused because cause and effect are intertwined. For example, personal characteristics such as age and literacy are more likely to

⁸¹Gates, *The Farmer's Age*, p. 399, p. 403.

⁸²Attack and Bateman, *To Their Own Soil*, especially chapter 13 and Figures 13-3, 13-4, and 13-5.

⁸³The less diversified crop, livestock, and land portfolio of tenant farmers increases the variance of tenant income. The same was true of tenants in the early twentieth century. See Gray, . In terms of pure labor income in 1920, however, tenants did better than yeomen.

⁸⁴Part-owners have been excluded from the analysis here.

be causal factors of tenancy, while characteristics of the farm such as a high degree of crop specialization probably result from it. In the case of a variable such as wealth, the argument is less clearcut. Owner-occupiers tended to be wealthier than tenants in part because their status as yeomen depended upon their wealth. Moreover, ownership of a farm also gave yeomen a superior income stream to that of tenants because they avoided paying rent and because they captured capital gains on land and the benefits of farm-making. *Ceteris paribus*, they could therefore accumulate wealth more rapidly.

Despite these problems, a single equation binary choice model is capable of throwing light on the factors that influence why one person became a tenant and another became a yeoman farmer. The variables that I hypothesize determine tenancy choice or are determined by it are shown in Table 4. Some of these are dummy variables, taking values of zero or one; others are continuous. The dependent variable itself is dichotomous and assumes a value of zero if the farmer was a yeoman and one if he was a tenant.

The model then uses the proportion of farmers who become tenants as the dependent variable. The odds in favor of becoming a tenant farmer may be expressed as:

$$p/(1 - p)$$

where p is the probability of tenancy. This transformation forms the basis of my logit model of farm tenancy:

$$\log [p/(1 - p)] = b_0 + b_i \{\log X_i\}, \quad i = 1, \dots, n$$

where X_i is the vector of independent variables representing the personal, household, and farm characteristics of the subject.⁸⁵ Because there is only one observation per decision-maker, this equation was estimated by an iterative Newton-Raphson Maximum Likelihood method.⁸⁶

⁸⁵The methodology is spelled out in detail in any standard econometric text. See, for example, George G. Judge, R. Carter Hill, et al., *Introduction to the Theory and Practice of Econometrics*, New York: John Wiley, (1982), especially pp. 521-5.

⁸⁶*Ibid.*, p. 522. The algorithm used was the LOGIST PROC in SAS.

TABLE 4
Variables Determining or Determined by the Choice of Tenure.

Variable	Interpretation
PERSONAL CHARACTERISTICS:	
Age (and its square)	years
Literacy	1 = literate 0 = not literate
Race	1 = White 0 = other
Migrant	1 = yes 0 = no
Immigrant from England	1 = yes 0 = no
Immigrant from Ireland	1 = yes 0 = no
Immigrant from Germany	1 = yes 0 = no
Immigrant from elsewhere	1 = yes 0 = no
Years residency in the state	years
Wealth	\$
HOUSEHOLD CHARACTERISTICS	
Size of household	number of people
Number of children	number aged under 15
Adult male equivalent workers in the household	number
FARM CHARACTERISTICS	
Proportion of improved acres	improved/total acres
Hired non-household workers	number
Farm gross revenues from wheat	Wheat \$/gross revenue
Farm gross revenues from corn	Corn \$/gross revenue
Farm gross revenues from oats	Oats \$/gross revenue
Farm gross revenues from dairy	Dairy \$/gross revenue
Farm gross revenues from home manufactures	home mfg. \$/gross revenue
Cattle per acre	cattle/total acres

The statistical results for the Northeast and Midwest are summarized in Table 5. The equation for the Midwest converged rapidly to its optimum level; that for the Northeast, somewhat more slowly.⁸⁷ Both estimates were statistically significant. Because of the logit transformation, interpretation of the regression coefficients is more complex than usual. Increases in the value of a variable whose estimated coefficient was negative reduces the probability that the person will be a tenant. Thus, for example, being a German immigrant tended to reduce the probability that the person was a tenant. Similarly, decreases in the value of a variable whose estimated coefficient was positive also reduces the probability that the person would be a tenant. Thus, being black in the Midwest reduced the probability of tenancy, whereas in the Northeast it increased it.

In both equations, wealth was, by far, the most significant explanatory variable for tenancy.⁸⁸ It drove the equations. Since, by definition, people with zero wealth were tenants, this is hardly surprising. Both equations also predict that people without wealth would be tenants with a high degree of certainty ($p > 0.96$ in the Midwest, $p > 0.85$ in the Northeast).⁸⁹ What proved surprising, however, is that wealth did not have to be very great before the probability of tenancy fell sharply (Figure 7). For someone with the average regional characteristics, wealth in excess of about \$565 in the Midwest and \$700 in the Northeast was sufficient to tip the probability in favor of owner-occupancy rather than tenancy. In the Midwest, \$1,000 was

⁸⁷The equation for the Midwest converged in 8 iterations, that for the Northeast in 20.

⁸⁸Substituting personal wealth for total wealth dramatically reduces the explanatory power of the equations. The pseudo R^2 for the Midwest, for example, falls from 0.839 to 0.465. This reflects the loss of statistical significance not just for the wealth variable but for all variables, except those reflecting characteristics of the farm.

⁸⁹These are the probabilities with other characteristics set at their approximate mean or most likely values. See Table 6. With other characteristics more appropriate for a tenant (see Table 3), the probability of tenancy estimated from the equations was a virtual certainty ($p > 0.99$).

TABLE 5
Logit Regression Results for Farm Tenancy in
the Northeast and Midwest, 1859-60.

Dependent Variable = 0 if Owner-Occupier
= 1 if Tenant

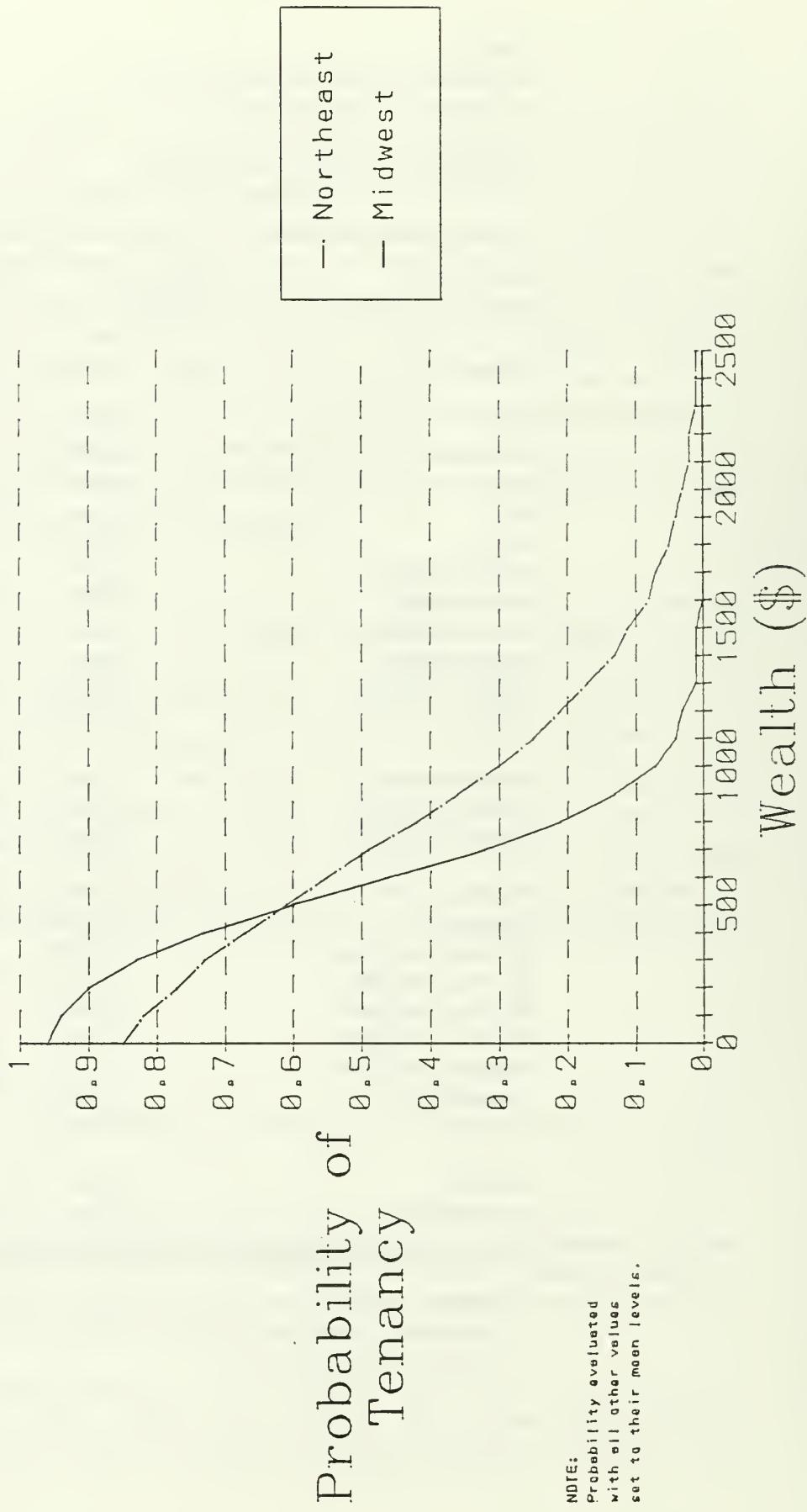
Characteristic	Northeast	Midwest
Intercept	-1.2954	-4.2641***
Age	0.0411	0.1062**
Age squared	-0.0008	-0.0013**
Literacy	-0.1232	0.3942*
Race	-1.1666	2.4529***
Migrant	-0.5142	0.1349
English Immigrant	-0.6793	-1.0086**
Irish Immigrant	0.2107	-1.3371***
German Immigrant	-1.2249	-0.8861**
Other Immigrant	0.2412	-0.9310**
Years of Residency	-0.0021	-0.0058
Wealth	-0.0026***	-0.0058***
Size of household	0.1712***	0.0956**
Number of children	-0.0453	-0.0496
Household labor force	0.8968***	0.4198**
% improved acres	1.2741***	1.6549***
Wage labor	1.3227***	0.5115***
% revenue from wheat	9.5628***	2.2656***
% revenue from corn	3.0177***	3.3461***
% revenue from oats	10.2621***	6.8615***
% revenue from dairy	0.5044	-2.0789*
% revenue from home		
manufactures	2.9874	-1.1167
Cattle/acre	-0.2866	-1.9337**
Pseudo R ²	0.790	0.839
Log likelihood	-806.13	-1280.67

*** Significant at better than 0.01

** Significant at better than 0.05

* Significant at better than 0.10

FIGURE 7
Wealth and the
Probability of Tenancy,
by Region, 1859-60



more than sufficient to make it at least 90 percent certain that a farmer would be a yeoman.⁹⁰ To achieve the same degree of certainty about tenure status in the Northeast would have required perhaps 75 percent more wealth.

In both regions too, immigrants, particularly the English and Germans, were less likely to be tenants than native-born Americans.⁹¹ More family labor, the use of hired labor, and being part of a larger household also seem to have been characteristics associated with higher tenancy rates, but on the other hand, more children reduced the probability of tenancy.

Despite these inter-regional similarities, however, it is clear from the estimated coefficients in Table 5 that tenancy in the Northeast was determined by a different set factors from those that influenced tenancy in the Midwest. None of the personal characteristics, except wealth, was significant in the equation for the Northeast. The variables that we argued were causal factors in tenancy--personal characteristics such as age, literacy, and so on--simply do not explain tenancy in that region. Furthermore, characteristics such as illiteracy that increase the probability of tenancy in the Northeast, reduce it in the Midwest. On the other hand, those variables that reflect tenancy--particularly the degree of crop specialization, emphasis upon cash grains, preference for farms with a high ratio of improved, that is cultivable, land to total acreage, and so forth--were highly significant. In particular, the failure of the age variables to explain tenancy in the Northeast suggests that the agricultural ladder was not working very well in that region. One possible explanation for this is that the successful Northeastern tenants--those moving up the ladder--were drawn westward by the lure of cheap land to become yeomen in the Midwest.

In the Midwest, most of the personal characteristics of farmers were significant explanatory variables for the probability that a person would be a tenant rather than a yeoman. In particular, the data show some evidence

⁹⁰This figure is the same as that given by Clarence Danhof as the the sum needed for independent farm-making in the Midwest during the 1850s. See Danhof, "Farm-Making Costs," *op. cit.* See also Atack, "Farm and Farm-Making Costs," *op. cit.*

⁹¹The Irish and other unspecified immigrant groups were, however, more likely to be tenants in the Northeast.

of a life cycle phenomenon at work, with the probability of being a tenant increasing at first with age up to the mid- to late-forties and then decreasing. The agricultural ladder thus seems to have been working in the Midwest. Furthermore, farm characteristics such as specialization generally operated in the same way in the Midwest as in the Northeast. In the Midwest, however, tenant farmers were much less likely to be heavily involved in dairy operations, nor were they likely to operate extensive cattle ranches.

The probability that someone was a tenant rather than a yeoman depends upon the the vector of their personal, household, and farm characteristics. For any given set of characteristics, the probability of tenancy, given the set of characteristics X_i^* , is defined by:

$$p = 1/[1 + e^{(-b_0 - b_i X_i^*)}]$$

The possibilities are infinite. Therefore in Table 6 I present some estimates of the change in the probability of tenancy in response to changes in individual explanatory variables holding other variables fixed at specific levels. In most cases, those levels are close to their mean values for continuous variables or at their most likely value (0 or 1) for dummy variables, such as literacy and migrant.

Consider, the case of the 40-year-old, white, literate midwestern farmer with \$565 wealth.⁹² The probability that this person was a tenant and not a yeoman was almost 50/50. If this farmer somehow obtained an extra \$100, say from the sale of a calf and a foal, then the probability that he would be a tenant falls to 0.36. If the farmer was illiterate, the probability of tenancy would be 0.41; if he was black, the probability would be only 0.08 that he was a tenant. If the farmer was Irish, the probability that he would be a tenant was only 0.19. Similarly, based upon the farm characteristics, if we knew that this same farmer derived, say, 40 percent of his gross revenues from corn, then the probability that he would be a tenant is 0.67.

Changes in the probability of tenancy in the Midwest were particularly sharp for farmers who were black, or who had immigrated to this country, particularly from Ireland. Farmers with such characteristics, other things

⁹²See the footnote to Table 6 for the values of the other personal, household, and farm characteristics.

TABLE 6

Probability of Tenancy for Specific Changes in Variables, Given an Initial Vector of Characteristics such that $P(\text{Tenancy}) = 0.50$.^a

Change in Characteristic	Probability of Tenancy	
	Northeast	Midwest
PERSONAL CHARACTERISTICS		
Age + 10 years	.40	.49
Age - 10 years	.57	.46
Illiterate	.53	.41
Non-Migrant	--	.47
Migrant	.38	--
English born	.34	.24 ^b
Irish born	.56	.19 ^b
German born	.23	.27 ^b
Born elsewhere overseas	.56	.26 ^b
Wealth + \$100	.44	.36
Wealth - \$100	.58	.64
Years of residency + 5	--	.50
Years of residency - 5	--	.51
Years of residency - 10	.51	--
Years of residency - 20	.51	--
Black	.76	.08
HOUSEHOLD CHARACTERISTICS		
Household size + 1	.55	.53
Household size - 1	.46	.48
Children + 1	.49	.49
Children -1	.51	.52
Household labor force + 1	.71	.61
FARM CHARACTERISTICS		
2/3 acreage improved	--	.57
7/8 acreage improved	.54	--
One wage laborer	.79	.63
Double wheat revenue	.60	.56
Double corn revenue	.58	.67
Double oats revenue	.63	.54
Double dairy revenue	.53	.45
Double home manufacturing	.50	.51
Double cattle/acre	.50	.48

(Notes to Table 6)

^aThe initial vector of characteristics for the Midwest was:

Age	40	Literacy	1	Race	1
Migrant	1	English immigrant	0	Irish immigrant	0
German immigrant	0	Other immigrant	0	Years of Residency	15
Wealth	\$565	Household size	6	Number of children	3
Household labor	1	Wage labor	0	Proportion improved acres	.5
Wheat revenue	.1	Corn revenue	.2	Oats revenue	.02
Dairy revenue	.1	Home mfg.	.01	Cattle/acre	.04

The initial vector of characteristics for the Northeast was:

Age	45	Literacy	1	Race	1
Migrant	0	English immigrant	0	Irish immigrant	0
German immigrant	0	Other immigrant	0	Years of Residency	40
Wealth	\$550	Household size	5	Number of children	2
Household labor	1	Wage labor	0	Proportion improved acres	.75
Wheat revenue	.04	Corn revenue	.1	Oats revenue	.05
Dairy revenue	.2	Home mfg.	.01	Cattle/acre	.04

^bMigrant dummy set to zero for these estimates. Base probability of tenancy was therefore 0.47 instead of 0.50.

equal, were much more likely to be yeomen than tenants. In the Northeast, the division between tenant and yeoman was much less clear-cut. Among the most important factors affecting the probability of tenancy were again those related to race and nativity. The German and English immigrants who settled in the Northeast were unlikely to be tenants, but the probability of tenancy for farmers belonging to other immigrant groups was little changed. Blacks, on the other hand, were much more likely to be tenants, though if the slave-state of Maryland is excluded from the data set, this characteristic loses its explanatory power. Two other factors provide important clues regarding the tenant status of northeastern farmers: those who had larger potential household labor forces than average and those who hired non-household wage laborers were generally much more likely to be tenant farmers.

RISING TENANCY AND AMERICAN AGRICULTURE

Seen against the backdrop of history, rising tenancy in the northern half of the United States during the nineteenth and early twentieth centuries seems part of an evolutionary, rather than revolutionary, process. Tenancy was probably an ever-present condition throughout the nineteenth century. It was certainly quite pervasive in 1860. In that year, lack of capital seems to have been the most likely cause of tenancy, just as it was sixty years later, and rising farm values are thus the most likely explanation of increasing tenancy in the North.⁹³ If this is the case then federal land policy, to the extent that it minimized entry costs, reduced the incidence of tenancy. Certainly, contrary to Gates's claim, it is unlikely to have promoted it. Because tenant net incomes compared unfavorably with those of yeomen, tenants were placed at a two-fold disadvantage during times of rising land values; they had less opportunity to accumulate wealth and they saw the object of their acquisitive desires rise in price and move further out of reach. As a result it took progressively longer for successive generations to move up the agricultural ladder. This was reflected in the increasing proportion of tenant farmers among specific age cohorts at successive censuses. At the same time, trends on tenant farms in the late nineteenth century towards larger scale, reduced self-sufficiency, increased market dependency, and greater crop risk set the tone for American agriculture in the twentieth century.

⁹³See Gray et. al., "Farm Ownership,"

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